



## A COMPARATIVE STUDY OF DETORSION AND SIGMOIDOPEXY VS RESECTION AND ANASTOMOSIS FOR SURGICAL MANAGEMENT OF SIGMOID VOLVULUS.

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### ABSTRACT

**BACKGROUND** Sigmoid volvulus is an acute surgical emergency. Modalities of surgery for the management of sigmoid volvulus are Detorsion & Plication { Sigmoidopexy }, Resection & Anastomosis, Resection & Colostomy.{Haartmans procedure}.

**AIM** To compare and contrast the two surgical procedures namely detorsion&sigmoidopexyVs Resection and Anastomosis for surgical management of sigmoid volvulus in terms of recurrences, mortality, duration of hospital stay and Post operative complications.

**MATERIALS AND METHODS** It is a prospective study of 16 cases of sigmoid volvulus which presented to Emergency Department of NRI Medical college Hospital, Guntur in a period of 2 years.

**STATISTICAL ANALYSIS** In this study we used FISCHERS EXACT TEST to know it is statistically significant and P value was 0.0373 which is statistically significant.

**RESULTS** 37.5% undergoing sigmoidopexy showed recurrence whereas 12.5% of those undergoing resection and anastomosis showed recurrence.

**CONCLUSION** Fixation of sigmoid colon in the form of sigmoidopexy is associated with high recurrence rate. Unless general condition precludes ,fixation of sigmoid colon should not be done as it is associated with high recurrence rate. Sigmoidopexy should be definitely followed by elective sigmoid resection.

**KEYWORDS** : Sigmoid volvulus, Sigmoidopexy, Resection & Anastomosis.

### INTRODUCTION:

Sigmoid volvulus is an acute surgical emergency and is the third leading cause of large bowel obstruction in North America and is frequently recognized as a cause of acute abdomen in the elderly and institutionalized patients in the USA and UK.<sup>1,2</sup> Sigmoid colon extends from the iliac fossa to the third sacral segment and connects the descending colon with the rectum. The sigmoid colon is characterized by its mobility because of its mesentery.<sup>3</sup>

The anatomical characteristics described earlier facilitate twisting of the sigmoid colon around its narrow base on an unusually long mesentery. Hughes refers to two distinct entities of sigmoid volvulus.<sup>4</sup> The first is a thickened wall with marked distal hypertrophy of the sigmoid colon and the proximal rectum with the taenia becoming inconspicuous towards the distal part of the sigmoid colon. In this variant the sigmoid arteries are also markedly engorged with fibrosis of the mesentery of the sigmoid colon. These changes, in his opinion, prevent the development of gangrene until a late stage. The second type has a colonic wall of normal caliber, but with a long mesentery.

Furuya et al. from Teikyo University school of Medicine, Japan found no relation between a functional disorder of bowel movement and elongation of the bowel in sigmoid volvulus and number of ganglion cells in Meissner's plexus.<sup>5</sup> Shangen Van Leewen found normal patterns of intramural ganglion cells in his series.<sup>6</sup> Atamanalap et al. in their series of 859 patients report that the mean symptom period for pediatric age group was significantly longer and consequently children had higher rates of bowel gangrene.<sup>7</sup> Two conditions that can mimic the radiographic appearance of sigmoid volvulus are pseudo-obstruction and caecal volvulus. Presence of air in the rectum, in the absence of rectal examination, will point towards the diagnosis of a pseudo-obstruction. A single air fluid level as opposed to multiple levels is more in favor of a caecal volvulus.<sup>8</sup> In doubtful cases a CT scan or MRI may be performed, which will show characteristic whorls, representing the twist in the mesentery.<sup>9</sup>

Hughes in his article appearing in the early 60's claims that sigmoid volvulus offers a unique pathology for exercising resection and primary anastomosis on the left colon and sites two important reasons.<sup>10</sup> He mentions that the wall of the distal part of the colon is hypertrophied which allows excellent anchorage for the sutures.

Furthermore the risk of spillage is minimal as the proximal part of the bowel hardly contains any constipated faeces, probably from a short period of evacuation prior to complete obstruction. De and Ghosh from India supported RPA without colonic lavage in their series based on 197 patients with gangrenous or non-gangrenous bowel who underwent operation for sigmoid volvulus.<sup>10</sup>

Akcan et al. in their retrospective analysis of 136 patients compared the outcome between RPA and Hartmann's in patients with gangrenous and perforated colon and reported anastomotic dehiscence rates of 30% in 10 patients with gangrene and perforation who underwent RPA.<sup>11</sup> Contrary to the findings of Raveenthiran, they reported a higher mortality rate in this group compared to patients who had had Hartmann's procedure.

Detorsion with sigmoidopexy-The colon is detorted and the serosa is sutured to the peritoneal wall with interrupted stitches or by gortexbanding. The procedure can be time consuming and the results are often equivalent to detorsion, with high rate of recurrence.

### MATERIALS AND METHODS

A total of 16 cases of sigmoid volvulus which presented to Emergency Department, NRI Medical college and Hospital for a period of 2 years. All the patients who were diagnosed to have sigmoid volvulus by X-ray erect abdomen and ultrasound pre operatively are admitted. After adequate resuscitation, Conservative management is done by passing flatus tube and giving soap water enemas. Surgery was taken up in whom conservative management failed. Operative procedures are recorded and intraoperative photographs are taken. Patients are shifted to post operative ward or ICU depending on condition of the patient. Post operative complications are dealt with accordingly. Patients were discharged and were asked to be on follow-up. The mean follow-up periods were 11 months {2-22 months}.

### INCLUSION CRITERIA

1. All the patients who were diagnosed to have sigmoid volvulus by X-ray erect abdomen and ultrasound pre operatively and failed to respond to conservative management.

2. Age of the patient > 12 yrs

**EXCLUSION CRITERIA**

- 1.Age of the patient < 12 yrs.
- 2.Cases of Gangrenous bowel found peroperatively.
- 3.Cases in which stapled anastomoses are performed

**RESULTS**

The correct preoperative diagnosis was possible for sigmoid volvulus in all most all patients.A total of 16 cases of sigmoid volvulus which presented to Emergency Department, NRI Medical college and Hospital for a period of 2 years.There were 9 male (66.57%) and 7 female patients (43.45%).The age of the patients ranged from 16 to 70. The interval between onset of symptoms and admission ranged from 1 day to 15 days with median of 4.37 days.In 15 out of 16 cases, volvulus occurred in anticlockwise direction. In one case,it was clockwise.In ~70% of cases, there was long mesosigmoid with elongated dilated sigmoid colon.In 12.5% of cases, enlarged lymph nodes with fibrosis of mesosigmoid were found.In 1 case which had previous surgery, there was a postoperative adhesive band which was attached to anti-mesenteric border of sigmoid to anterior abdominal wall.Of 16 patients presenting 8 underwent resection and anastomosis and 8 sigmoidopexy. The mean duration of hospital stay was 11.7 days with resection anastomosis and 10.8 days with sigmoidopexy. Of the 8 cases undergoing resection and anastomosis 1case (12.5%) had postoperative wound infection, 2 cases (25%) had postoperative pulmonary complications, 1 case (12.5%) had anastomotic leak, 1 case (12.5%) expired because of M.I. and none had recurrence. Of the 8 cases undergoing sigmoidopexy 1 case (12.5%) had postoperative pulmonary infections, 3 cases (37.5%) developed recurrence and none postoperative wound infection.

**DISCUSSION**

Depending upon patient's condition and choice of surgeon, any of the available treatment options can be selected for patients presenting with sigmoid volvulus. But non-operative de-torsion with sigmoidoscopy or rectal tube insertion followed by early elective sigmoidectomy is preferred in the emergency conditions to prevent recurrence.15,16 Surgeon should limit his choice to mesosigmoidoplasty or sigmoidopexy in emergency surgery where gut is viable to avoid the high risk of anastomotic leak associated with resection and anastomosis in the emergency setting.17 But the recurrence rate is high after this procedures. Sigmoidectomy with or without anastomosis has gained agreement as definitive treatment of sigmoid volvulus by most of the authors.19,20 The average days of presentation are 4.4 days after onset of obstructive symptoms in our study. Thus, the chances of patients having advanced disease and increased incidence of ischemic and gangrenous bowel is more. Also, most patients were elderly and with comorbidities thus increasing the risk of complications and morbidity/mortality following surgical intervention. Comparing recurrence rate of different procedures in our study, recurrence was highest i.e. 37.5% in those undergoing sigmoidopexy where as no recurrence was seen in those who underwent resection of sigmoid colon and reanastomosis which is in agreement with Agaoglu study in 2006{29%-35%}20

**CONCLUSION**

In approximately 70% of cases the predisposing cause is long mesosigmoid with long dilated and redundant sigmoid colon. Fixation of sigmoid colon in the form of sigmoidopexy is associated with high recurrence rate {37.5%}.Unless general condition precludes ,fixation of sigmoid colon should not be done as it is associated with high recurrence rate. Sigmoidopexy should be definitely followed by elective sigmoid resection.So in nongangrenous sigmoid volvulus sigmoid resection and anastomosis is best option for sigmoid volvulus.

**Frequency And Percentage Distribution Of Demographic Variables**

n=16

SL.NO	DEMOGRAPHIC VARIABLE	FREQUENCY	PERCENTAGE
1	AGE		
	a.	1	6.25
	b.	3	18.75
	c.	4	25
	d.	6	37.5
e.	2	12.5	
2	SEX		
	a. Male	9	56.25
	b. Female	7	43.75

FREQUENCY AND PERCENTAGE DISTRIBUTION OF SUBJECTS BASED ON CLINICAL FEATURES AND PREDISPOSING FACTORS

n=16

CRITERIA	PARAMETERS	FREQUENCY	PERCENTAGE
CLINICAL FEATURES	Acute abdominal pain	16	100
	Abdominal distension	15	93.75
	Abdominal rigidity and tenderness	16	100
	Nausea and vomiting	5	31.25
	Constipation	15	93.75
	Bloody mucoid discharge per rectum	0	0
PREDISPOSING FACTORS	Long sigmoid mesocolon	11	68.75
	Enlarged and fibrosed lymph nodes	2	12.5
	Post operative adhesions	1	6.25
	Constipation	2	12.5

COMPARISON BETWEEN POST OPERATIVE OUTCOME OF SIGMOID RESECTION AND ANASTOMOSIS AND SIGMOID DETORSION AND PPLICATION (SIGMOIDOPEXY)

n=16

SL.NO	CRITERIA	SIGMOID RESECTION AND ANASTOMOSIS n=8	SIGMOID DETORSION AND PPLICATION(SIGMOIDOPEXY) n=8
1	Duration of hospital stay	11.7 days	10.8 days
2	Wound infections	1/8 {12.5%}	0
3	Post operative pulmonary complications	2/8 {25%}	1/8 {12.5%}
4	Anastomotic leakage	1/8 {12.5%}	0
5	Burst abdomen	0	0
6	Mortality	1/8 {12.5%}	0
7	Recurrence	0	3/8 {37.5%}

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